

Our Docket No.: 42P17673

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Michael L. Case)	Examiner: Luong, Alan H.
)	
Application No.: 10/670,064)	Art Group: 2427
)	
Filed: September 23, 2003)	
)	
For: Tuner Module Utilizing Device-)	
<u>Specific Controller</u>)	

PRELIMINARY AMENDMENT

Mail Stop RCE
Commissioner for Patents
P.O Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the Request for Continued Examination filed herewith and in further response to the final Office action mailed July 22, 2011, Applicant respectfully requests the Examiner to enter the following amendment and to consider the following remark.

CERTIFICATE OF EFS Web

I hereby certify that this correspondence is being submitted electronically via EFS Web on the date shown below to the United States Patent and Trademark Office.

Date of Deposit: October 24, 2011
Name of Person Mailing Correspondence: Krista Bowen
/Krista Bowen/ /October 24, 2011 /
Signature Date

In the claims:

Following is a complete set of claims as amended with this Response.

1. - 23. (Cancelled)

24. (New) An apparatus comprising:

a graphics controller of an entertainment system to generate commands for controlling a tuner of the entertainment system, the commands being generated in a first protocol;

a microcontroller of the entertainment system coupled to the graphics controller to receive the commands from the graphics controller, to identify the controlled tuner to which the commands are directed, and to convert the commands from the first protocol to a second protocol specific to the controlled tuner, the microcontroller being coupled to a wired addressable control line, to send and receive addressed control and command data, including the commands from the graphics controller to the identified tuner, using an assigned address of the identified tuner through the control line; and

the controlled tuner having an external control line interface coupled to the control line to receive the addressed commands from the microcontroller in the second protocol specific to the controlled tuner, the controlled tuner further comprising a video connection to receive modulated video signals and a video output to provide demodulated video signals based on the received modulated video signals, the external control line interface being separate from the video connection.

25. (New) The apparatus of Claim 25, wherein the control line is a bus shared with multiple components, each component having a different address for communications on the bus.

26. (New) The apparatus of Claim 26, wherein the control line is coupled to multiple components through a daisy-chained connection.

27. (New) The apparatus of Claim 24, wherein the controlled tuner further generates command responses in the second protocol and sends the command responses addressed to the microcontroller through the external control interface and wherein the microcontroller receives the command responses over the control line in the second protocol, converts them to the first protocol and transmits the converted command responses to the graphics controller.

28. (New) The apparatus of Claim 24, wherein the controlled tuner external control line interface is further coupled to other addressable components and wherein the controlled tuner communicates data and control signals in the first protocol addressed to other components independent of the microcontroller.

29. (New) The apparatus of Claim 24, wherein the controlled tuner sends addressed data and control signals in the first protocol to the microcontroller through the external interface.

30. (New) The apparatus of Claim 29, wherein the microcontroller receives the addressed data and control signals from the controlled tuner, converts the data and control signals from the second protocol to the first protocol and send the converted data and control signals to the graphics processor.

31. (New) The apparatus of Claim 24, wherein the graphics controller comprises a system processor coupled to the microcontroller to generate the commands in the first protocol to control the tuner and to control other functions of the entertainment system.

32. (New) The apparatus of Claim 24, wherein the microcontroller further comprises a look-up table for the tuner and wherein the microcontroller converts the commands from the graphics controller by applying the commands in the first protocol to the look-up table.

33. (New) The apparatus of Claim 24, wherein the microcontroller further comprises an instruction stack specific for the controlled tuner and wherein the microcontroller converts the commands in the first protocol by applying instructions from the tuner-specific instruction stack.

34. (New) The apparatus of Claim 24, further comprising a second tuner to receive modulated video signals through a video connection and to provide demodulated video signals, the second tuner having a second external control line interface separate from the video connection to send and receive control and command data in a third protocol different from the first and second protocols and specific to the second tuner at the second external control line interface;

35. (New) A method comprising:
generating generalized instructions in a first protocol at a graphics controller of an entertainment system to control a tuner of the entertainment system;
receiving the generalized instructions in the first protocol at a microcontroller separate from the graphics controller;

identifying the tuner to which the generalized instructions are directed;
determining an address assigned to the identified tuner;
determining a communications protocol for the identified tuner as a second protocol different from the first protocol;
converting the generalized instructions in the first protocol to tuner control and command data in the identified second protocol; and
transmitting and receiving control and command data to and from the identified tuner using the determined address through a shared wired control line coupled to the identified tuner.

36. (New) The method of Claim 35, further comprising:
receiving control and command data responses in the second protocol at the microcontroller from the first tuner through the shared control line;
converting the received command responses to the first generalized protocol; and
transmitting the converted command responses to the graphics controller.
37. (New) The method of Claim 35, further comprising:
receiving at the microcontroller from the graphics controller generalized instructions in the first protocol for a second tuner;
determining an address assigned to the second tuner;
converting the second tuner generalized instructions to tuner control and command data in a third communications protocol specific to the second tuner; and
transmitting the third protocol tuner control and command data through the shared control line to the second tuner using the determined address.

37. (New) The method of Claim 35 wherein converting generalized instructions comprises applying the generalized instructions in the first protocol to a look-up table.

38. (New) The method of Claim 35, wherein converting the generalized instructions comprises applying instructions from a tuner-specific instruction stack.

39. (New) An article comprising a non-transitory machine-readable storage medium having stored thereon data representing instructions which, when executed by a machine, cause the machine to perform operations comprising:

generating generalized instructions in a first protocol at a graphics controller of an entertainment system to control a tuner of the entertainment system;

receiving the generalized instructions in the first protocol at a microcontroller separate from the graphics controller;

identifying the tuner to which the generalized instructions are directed;

determining an address assigned to the identified tuner;

determining a communications protocol for the identified tuner as a second protocol different from the first protocol;

converting the generalized instructions in the first protocol to tuner control and command data in the identified second protocol; and

transmitting and receiving control and command data to and from the identified tuner using the determined address through a shared wired control line coupled to the identified tuner.

40. (New) The medium of Claim 39, further comprising instructions which, when executed by the machine, cause the machine to perform further operations comprising:

receiving control and command data responses in the second protocol at the microcontroller from the first tuner through the shared control line;

converting the received command responses to the first generalized protocol; and

transmitting the converted command responses to the graphics controller.

41. (New) The medium of Claim 39, further comprising instructions which, when executed by the machine, cause the machine to perform further operations comprising:

receiving at the microcontroller from the graphics controller generalized instructions in the first protocol for a second tuner;

determining an address assigned to the second tuner;

converting the second tuner generalized instructions to tuner control and command data in a third communications protocol specific to the second tuner; and

transmitting the third protocol tuner control and command data through the shared control line to the second tuner using the determined address.

42. (New) The medium of Claim 39, wherein the instructions for converting the generalized instructions comprise instructions which, when executed by the machine, cause the machine to perform further operations comprising applying the generalized instructions in the first protocol to a look-up table.

43. (New) The method of Claim 39, wherein the instructions for converting the generalized instructions comprise instructions which, when executed by the machine,

cause the machine to perform further operations comprising applying instructions from a tuner-specific instruction stack.

44. (New) A video tuner comprising:

a system processor of an entertainment system to receive user commands and to generate generalized instructions in a first protocol based on the received user commands to control at least one of a first and a second tuner;

a microcontroller of the entertainment system coupled to the graphics controller to receive the generalized instructions from the graphics controller, to identify a tuner to which each generalized instruction is directed, to determine an address for the identified tuner, to convert the received generalized instructions from the first protocol to control and command data in a protocol for the identified tuner, and to send and receive control and command data addressed to the respective identified tuner using the identified address through a shared control line to a control line interface of the respective tuner;

the first tuner having a first video connection to receive wireless video signals modulated over a carrier frequency, the tuner having a first control line interface separate from the first video connection to send and receive control and command data in a second protocol specific to the tuner to and from the system processor through a shared control line to the microcontroller;

a second tuner having a second video connection to receive wireless video signals modulated over a carrier frequency, the second tuner having a second control line interface separate from the second video connection to send and receive control and command data in a third protocol specific to the tuner to and from the system processor through the shared control line to the microcontroller.

45. (New) The video tuner of Claim 44, wherein the first tuner further generates command responses in the second protocol and wherein the microcontroller receives the command responses through the shared control line, converts the command responses to the first protocol and transmits the converted command responses to the system processor.

46. (New) The video tuner of Claim 44, wherein the first tuner control line interface further comprises an input/output interface to communicate data and control signals in the first protocol to external devices and wherein the microcontroller is coupled to the input/output interface to convert data and control signals between the first protocol and the third protocol.

47. (New) The video tuner of Claim 44, further comprising a look-up table for the first tuner and wherein the microcontroller converts the generalized instructions from the system processor to first tuner commands by applying the generalized instructions in the first protocol to the look-up table.

48. (New) The video tuner of Claim 4, further comprising an instruction stack specific for the first tuner and wherein the microcontroller converts the generalized instructions from the system processor to first tuner commands by applying instructions from the first tuner-specific instruction stack.

Remark

Applicant respectfully requests reconsideration of this application as amended. All claims, Claims 1-23, have been canceled and replaced with new claims 24-48. Therefore, only new Claims 24-48 are presented for examination.

In response to the previous amendment, the Examiner indicated that further consideration or search may be required and did not consider the amendment nor the arguments presented at that time. The new claims incorporate features which were presented as amendments in the previous amendment but have been rewritten for better presentation and easier comprehension. The previous remarks still apply although the claim numbering has changed and are therefore reproduced below.

35 U.S.C. §102 Rejection

Fukuda

The Examiner has rejected claims 1-5, 8-10, 13-15 and 18-21 under 35 U.S.C. §102(e) as being anticipated over Fukuda, U.S. Patent Publication No. 2005/0172332 (Fukuda”).

Fukuda provides an example of a conventional system in which all of the tuners are controlled in the same way. In the example of Fukuda, all of the tuners 102, 103 are coupled to the receiver 101 using the same IEEE 1394 interface and AV/C protocol.

In the present invention, different types of tuners which use different communication protocols can be accommodated through the use of the claimed microcontroller. The microcontroller receives instructions from a graphics controller, identifies the tuner to which they are directed, converts them for the benefit of the respective tuner and transmits them accordingly.

Referring to Claim 1 as an example, it has first and second tuners and first and second protocols for commands. The “second protocol [is] different from the first protocol and specific to the second tuner.” In Fukuda there is the AV/C protocol used over the 1394 interface. This is used by all of the tuners. There is also a serial bus interface asynchronous protocol that is also used by all of the devices.

Claim 1 also refers to a microcontroller which receives commands from a graphics controller in yet another third protocol “different from the first and second protocols.” Fukuda does not mention a third protocol or that the control unit 230 of the receiver 101 uses a particular protocol that is different from the control unit 204 of the tuner 102.

The microcontroller, in addition to converting commands from one protocol to another, also identifies a tuner, converts the command to the appropriate protocol for the identified tuner and transmits the converted command to the respective identified tuner.

These operations are not possible in Fukuda’s design. Only the receiver’s control unit 230 can send commands to different tuners. The commands are in the same AV/C protocol for all of the tuners and are probably addressed using the conventional Firewire addressing scheme. At each tuner only the AV/C and local protocols are used.

Based on the distinctions above, Applicant respectfully submits that the rejection of the final Office action July 30, 2009 are traversed.

35 U.S.C. §103 Rejection

Fukuda

The Examiner has rejected claims 6, 11, 16 and 22 under 35 U.S.C. §103(a) as being unpatentable over Fukuda. This rejection is addressed to the claims which refer to a look-up table and are traversed on the same grounds as provided above.

35 U.S.C. §103 Rejection

Fukuda and Young

The Examiner has rejected claims 7, 12, 17 and 23 under 35 U.S.C. §103(a) as being unpatentable over Fukuda and in further view of Young, U.S. Publication No. 2003/0194968 (“Young”). This rejection relies on the same grounds as the anticipation rejection based on Fukuda and is traversed on the same grounds as provided above.

Conclusion

Applicant respectfully submits that the rejections have been overcome by the amendment and remark, and that the claims as amended are now in condition for allowance. Accordingly, Applicant respectfully requests the rejections be withdrawn and the claims as amended be allowed.

Invitation for a Telephone Interview

The Examiner is requested to call the undersigned at (303) 740-1980 if there remains any issue with allowance of the case.

Request for an Extension of Time

Applicant petitions for an extension of time to respond to the outstanding Office Action pursuant to 37 C.F.R. § 1.136(a) should one be necessary. Please charge our Deposit Account No. 02-2666 to cover the necessary fee under 37 C.F.R. § 1.17(a) for such an extension.

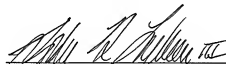
Charge our Deposit Account

Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,

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